

2003-04 Warm Water Fish Management Activity Report

Region 4 (Great Falls)

MIDDLE MISSOURI RIVER (MORONY DAM TO FRED ROBINSON BRIDGE)

Pallid Sturgeon

Fisheries crews completed 213 trammel net drifts during May 27 - June 15, 2003 and captured 4 adult male pallids and zero females. Therefore, no pallid sturgeon eggs were collected from the Middle Missouri in 2003 and no hatchery-raised juveniles were stocked in 2003. The sperm from 3 males was cryopreserved and stored at Garrison National Fish Hatchery. The current plan is to stock about 4,000 yearling pallids in this reach during the summer, 2004. The long-term goal of the pallid sturgeon stocking program is to create an adult population of 1,000 fish aged 15-24 years, represented by 120 families, and maintain these numbers for 15 years (one generation).

A total of 758 yearling pallids (1997 year class) were stocked in the Middle Missouri in 1998. We captured 31 of these fish in 2003. Most of these were small for a 6-yr-old fish, with fork length of 17.3-29.8 inches and weight of 0.65-3.30 lbs. Since 1998 we have captured 61 of these stocked fish, so there appears to be good survival from this release. Evaluation of survival of hatchery pallids from the 2002 release (2001 year class) is difficult at this time because these fish are probably too small to effectively sample.

An MSU graduate study began in 2003 to investigate the food habits and habitat selection of the hatchery-raised pallids in the Robinson Bridge section of the Missouri River.

Sauger

Sauger numbers are monitored by electrofishing in several river sections in the early fall. Sauger numbers in the Morony area just below Great Falls showed improvement this year with an electro-sample catch rate of 3.8 sauger/hr. Numbers in the Fort Benton area were similar to last year at 4.1/hr. The catch in the Coal Banks area improved to 7.1/hr, as did Judith Landing area (10.5/hr) and Robinson Bridge area (15.5 sauger/hr). In general, for the first time in a decade, we are seeing a gradual improvement in the sauger population in this reach of the Missouri River.

We are attempting to improve sauger numbers in the upper portion of the Middle Missouri below Morony Dam where they once were very abundant. We suspect that because of overall low numbers in the system, sauger are slow to recolonize the upper river. To address this, we are trying to re-populate the area by stocking age-0 sauger in Morony and Cochrane reservoirs, hoping the young sauger will rear in the reservoirs and eventually flush out downstream to

repopulate the Morony and Fort Benton areas on the river. This could possibly also imprint sauger to spawn in the Morony area. Our goal is to stock a total of 100,000 fingerlings annually into the reservoirs. To do this we need about 200,000 - 300,000 fry to stock into 2 rearing ponds at the Miles City hatchery.

We had good success in 2003, collecting 2,101,300 sauger eggs. The eggs were hatched in the hatchery building at Miles City and over 100,000 fry were stocked in each rearing pond. A total of 70,000 fingerlings averaging 1.5 inches long were produced in the rearing ponds, and these were stocked in Morony Reservoir in late June. This years' problems included poor eye-up (20.3%) and higher than expected mortality associated with transportation to the release site. In 1999 we stocked only 5,000 sauger fingerlings in Morony. No sauger were stocked in 2000, and 18,000 total were stocked in Morony/Cochrane in 2001 and 23,000 in 2002.

Prior to stocking, the hatchery-raised sauger fingerlings are marked with tetracycline (TET), an antibiotic that leaves a fluorescent ring on bones and spines. Fish caught during electrofishing surveys in the river are examined to determine their survival and contribution to the river fishery. During the electrofishing survey in the area downstream of Morony Dam last fall, we examined five age-0 sauger for TET marks and two of these showed the mark of the fish stocked in Morony Reservoir in 2003. Additionally, one age-0 from the Robinson Bridge area (200 miles downstream) that was examined also showed a TET mark. This indicates some had already flushed out of the reservoirs and were living far downstream in the river.

An MSU graduate study, funded by PPL Montana, was initiated in 2004 to investigate sauger movement patterns, spawning areas and habitat selection. Additionally, interactions between sauger and walleye will also be studied to evaluate what effect, if any, walleye numbers have on sauger. Ongoing genetic studies have shown that the sauger hybridization rate in the upper section of the Missouri is much greater (20%) than in other areas and this could have negative effects on the sauger population here.

CHOTEAU AREA

Tiber Reservoir

Biologists continue to closely monitor the cisco population in Tiber. Cisco were introduced into the reservoir in 1997 and 1998 to enhance the forage base for the reservoir's walleye and northern pike, but prior to 2002 very little production had occurred. A very strong year class of cisco produced in 2002 now dominates this population and their growth rates have declined significantly. The average length of cisco from the 2002-year class is currently two inches smaller than what was observed for same-aged fish from the initial plant in 1997. Slower cisco growth is a good thing because it means that they will be available as a walleye food item due to their smaller size and slower growth rate.

Although Tiber's northern pike demonstrated improved growth and condition following the cisco introduction, the reservoir's small walleye were not able to utilize this new forage base. The stocked cisco grew too large for most walleye to prey on. However, following the production of the strong year class in 2002, cisco were found in a few walleye stomachs for the first time since their introduction into the reservoir. During 2003, cisco were observed in several walleye stomachs collected in fall gill net surveys. Biologists are cautiously optimistic that Tiber's cisco population will continue to develop into an important component of the reservoir's forage base.

Fall 2003 gill net catches of walleye, northern pike, and yellow perch in Tiber were comparable to net catches in 2002. Relative abundances of walleye and northern pike were similar to historic levels, but yellow perch numbers remained high. It is possible the introduction and subsequent production of cisco in Tiber has reduced predation pressure on yellow perch. Limited cisco production occurred during 2003, but yellow perch and spottail shiners were abundant in forage fish surveys.

Anglers enjoyed excellent walleye fishing on Tiber again during 2003. Catch rates remained high throughout most of the summer, and many anglers recognized the improved size and condition of Tiber's walleye. A few large northern pikes were reported from Tiber this past year, although relatively few anglers specifically target them.

Lake Frances

Walleye and northern pike fishing continued to challenge and frustrate anglers on Lake Frances during 2003. Similar to 2002, an abundance of yellow perch and spottail shiners provided ample forage for the lake's walleye and northern pike, resulting in tough fishing. A weekend creel survey completed on Lake Frances during 2003 confirmed that walleye and northern pike fishing were very slow throughout the summer. Many anglers questioned whether the fishery survived the recent low water conditions.

In contrast to what anglers experienced, fall gill net surveys indicated the Lake Frances fishery is in excellent shape: Walleye numbers are at record level, pike numbers are on the increase, and yellow perch are more abundant in the reservoir than they have been for many years. Excellent perch and northern pike production can be expected in future years as they utilize the abundant willows that prospered when the reservoir was so low during 2000 and 2001. This now flooded vegetation at Lake Frances provides optimal spawning and rearing habitat for these species. Anglers are encouraged to harvest pike from Lake Frances to help keep their population in balance with the other fisheries.

Bynum Reservoir

The ongoing drought continues to limit the fishery and fishing opportunities in Bynum Reservoir northwest of Choteau. This irrigation reservoir received very little water this past year and had a maximum depth of about 15 feet going into the winter, which was adequate to overwinter fish. Thus, aeration was not used on Bynum and the reservoir remained open to angling this past winter. The few anglers that ventured out onto Bynum's ice enjoyed decent perch fishing.

Recent netting results indicated there are excellent numbers of several different year classes of yellow perch in the reservoir, but the only walleye sampled were yearlings (about nine inches in length) stocked during 2002. An additional 30,000 walleye fingerlings were stocked into Bynum during 2003 in anticipation of improving water conditions. An abundant forage base including yellow perch, spottail shiners, and suckers will help promote the development of this fishery should water conditions improve.

Currently, Bynum is storing less than 25% of its total water volume capacity and it is unlikely it will receive any more water diverted from the Teton River this spring. Thus, the reservoir will likely be drawn down to dead storage by mid-summer to meet irrigation demands.

Pishkun Reservoir

For the second consecutive year, fisheries personnel used trap nets to remove about 500 northern pike from Pishkun to reduce predation pressure in the reservoir. It is hoped removing some of the pike from Pishkun will lead to better perch fishing, improve pike growth rates, and possibly provide an opportunity to establish a rainbow trout fishery. Pishkun has abundant deep-water habitat and is capable of producing trophy-sized rainbow trout in the 10- to 12-lb range. During 2003, due to ongoing drought throughout Montana, over 150,000 surplus rainbow trout were available to stock into Pishkun. Future plans include stocking larger (8 inch) rainbow trout in the fall when cooler water temperatures will help further reduce pike predation pressure. These management strategies are outlined in the current "*Montana Warmwater Fisheries Management Plan*".

Split Rock Lakes

The 500 northern pike removed from Pishkun Reservoir during 2003 were transplanted into Split Rock Lakes, a series of small pothole lakes located just to the west of Pishkun. Historically, Split Rock has supported a northern pike and yellow perch fishery. The Pishkun pike were transplanted into Split Rock Lakes to provide additional fishing opportunities. A population estimate completed with the tagged Pishkun pike indicated Split Rock's northern population numbered only about 100 fish prior to the transplant. FWP is proposing to introduce spottail shiners into Split Rock Lakes this summer to supplement the forage base.

HELENA AREA

Hauser Reservoir

Hauser yellow perch populations rebounded in 2003 to the highest level since 1996. Additionally, anglers caught perch through the summer at highest rate since 1996. This is good news as perch habitat projects were completed for the fourth year. Since 2000, over 5,000 discarded Christmas trees and junipers have been deployed to improve perch spawning and rearing habitat. In 2004, over 700 junipers were submerged in and around the Causeway. Contributors to this work for the past two years have been PPL Montana and MFWP Future Fisheries, with much of the manual labor coming from Montana Conservation Corps. Despite recent improvements, perch numbers remain below the management plan target.

Walleye densities, although having declined since the 1998 record high, remain within the management plan target range. The strong 1996 and 1997 year classes continue to be represented in the nets and creel; in 2004 these fish will be 24" to 25" and approximately 7 pounds. Numerous small walleye (10"-15") were collected in fall 2003 gillnets. Angler catch rates for walleyes fell in 2003 with the highest catch rates recorded in July.

After years of suffering from fish flushing that occurred during the high water years 1995 through 1997 (remember what high water was?) Hauser Reservoir supported near-record angler catch rates for rainbow trout in 2003. Throughout the summer and into the winter, rainbows were caught at record rates due in large part to a management shift in fish stocking. Since 1999, approximately 200,000-hatchery rainbow have been planted each year. (Due to drought, Hauser received 300,000 rainbows in 2003) Even with these large numbers of rainbow being stocked, survival continued to decline to the point that nearly none of the 211,000 rainbows stocked in 2001 survived. This prompted managers to request larger and more expensive hatchery fish. Starting in 2002, half (approximately 100,000) rainbows were planted as 8" fish in October rather than as 5" in July. The results have been dramatic with a 40% survival advantage for the larger fish in 2002 and early indications from 2003 suggest that the 5" fish may not have survived while the 8" appear to be doing very well. This is not the first time this has worked. A study completed on Wyoming's North Platte Reservoir documented similar results. In western reservoirs where the management goal is for a high quality multi species fishery (rainbow, perch, walleye and kokanee salmon), larger hatchery trout appear to be required to maintain that component of the fishery. Furthermore, larger hatchery trout need to be stocked later in the fall to avoid periods of high walleye predation. Rainbows remain below the management plan target in Hauser, but the recent findings are promising.

Early indications are that we are going to have another drought year in 2004. In years past, Hauser and Holter Reservoirs have been very productive during prolonged drought periods. The species that should benefit the most from these low water years is kokanee salmon. As with rainbow, there has been a management shift from stocking small kokanee (even eggs and fry) to 6"-7" fish. Again this comes at an increased cost but it appears that these larger kokanee have a significant survival advantage over their smaller comrades. The goal of

the management plan is to attempt to rebuild the once-wild reproducing kokanee population with hatchery fish. Additionally, in 2004, FWP will determine if there is value in continuing to stock kokanee salmon. Kokanee remain well below the management plan target.

Biologists continue to work towards a solution of the low dissolved oxygen problem in Hauser Reservoir. On average, water discharged from Canyon Ferry is below the state of Montana water quality standard of 6.5mg/l for 90-120 days. The Bureau of Reclamation, who operates Canyon Ferry Dam, has studied the problem and is now working towards a long-term fix. In 2003, BOR tested air injection on the turbines, hoping to raise dissolved oxygen levels in water discharged into Hauser. BOR will test this equipment again in 2004.

Holter Reservoir

Yellow perch catch rates in Holter Reservoir continue to remain well below the management plan target of 10/net in fall sinking gillnets. Surveys done in the fall of 2003 revealed a slight increase in perch, from 3/net in 2002 to 5/net in 2003. Winter catch by anglers rates jumped substantially in 2003-2004 with 2.4 perch per hour recorded. This is the highest rate since 2000 and slightly above the long-term average of 2.2 per hour. Walleye consumption rates of yellow perch have varied through the years with perch, at times, comprising a significant portion (primarily during late summer months when young of the year perch become available). Even though Holter Reservoir is capable of producing abundant young perch, this does not translate to better catch rates in nets and by anglers. On average, it takes four years for a perch to grow to 8". That is a long time for a small perch to dodge the numerous predators that exist in Holter!

The Holter walleye population has been declining since the record 1999 catch. In 2003, 2.5 walleye per net were collected in fall nets. Even though this one-year finding falls below the management plan target, the three-year average (the standard in the management plan) remains above the target (3/net) at 3.9 per net. Angler catch rates remain good throughout the summer, peaking in July at 0.18 fish per hour. Catch rates averaged over the summer were the highest since 2000 and well above the long-term average. The walleye population has been the only species to meet the management plan target in Holter since the plan was written in 2000. Rainbow and perch have failed to meet their respective management plan targets.

Walleye angler harvest regulations of 6 fish daily, five under 20 inches and one greater than 28 inches (fish between 20-28 inches must be released) remain in effect during the 2003-2004 seasons. This liberalized bag limit was implemented during the 2000-2001 cycle to reduce walleye densities in an effort to improve remaining walleye growth rates combined with reducing the predation pressure on rainbow, kokanee salmon and yellow perch.

Similar to Hauser, rainbow survival has been monitored in Holter since 1996. Unlike Hauser, experimental rainbow plants have been ongoing since 1996.

MFWP has been uniquely marking hatchery rainbow to determine which variety and size gives the best “bang for the buck”. Variables in this evaluation have included size at release (4” vs. 8”), strain (Eagle Lake vs. Arlee), and most recently month of release (July vs. October). Since 1996, 8” “overwintered” Eagle Lake strain rainbow have shown from 3X to 11X better survival (Ave.=6.9X) over 4” Eagle Lake rainbows. Since 2000, Arlee strain rainbow have been released as 8” in October. Three out of four years have shown from 2.0X to 4.7X survival advantage over the 4” Eagle Lake. Lastly, since 2000, fall planted Arlee rainbows have been compared to the 8” Eagle Lake. The 8” July release of Eagle Lake have out performed the October release of 8” Arlee from 2.0X to 5.6X (Ave.=3.4X). All this points in the same direction; larger rainbow survive better than small ones. In fact, size (and possibly strain) may be more important than the month of release (July vs. October). This said, it is important to keep in mind that management of a multi-species fishery comes at a cost. Jack Boyce, Lewistown hatchery manager, estimated those 8” rainbows are 7X more expensive to grow in the hatchery than the 4” variety. The 2002 summer creel survey conducted by MFWP asked what species anglers were targeting in Holter Reservoir? Results from this question indicate that 43% were targeting rainbow trout while 20% were targeting walleye. The remaining anglers were targeting perch and “anything that bites”.



Hauser Reservoir kokanee salmon (4/2004)

LEWISTOWN AREA

In 2003 we sampled Petrolia, Big Casino, East Fork and several small reservoirs in the Missouri River Breaks. Many of the Breaks reservoirs filled in 2003 and early in 2004. Drag Reservoir continues to provide a good opportunity for largemouth bass and bluegills. A new reservoir, Whisker, off the Musselshell trail

was stocked with largemouth bass for the first time in 2004. Low points include winterkill at Lower Carter in 2003/2004, and lack of water in Dry Blood and Payola.

Petrolia Reservoir – Despite maximum water depths of only 9 feet in winter 2002/2003, fish over-wintered successfully. In 2003, spring run-off added over 10 feet of depth to Petrolia. Much of the woody vegetation that had grown 20 feet below the high water mark during recent drought was flooded and should provide some good fish habitat in 2004. Spottail shiners, a forage fish stocked in the reservoir from 1996 – 1998, were not sampled in 2002 or 2003. Their introduction appears to have been a failure. Carp, northern pike, walleye and white suckers were captured during fall gillnetting. The northern pike were small (15.2 inches average length) but numbers were higher than seen since 1997. Petrolia Reservoir was trapped in spring 2004 and the results have not been summarized but high points included two walleye in the 7 – 8 pound range and many northern pike.

East Fork Reservoir – The size of northern pike continues to improve in East Fork Reservoir, near Lewistown. In 2003 the pike were still quite small; the mean weight for trapped northern pike was 2.2 pounds but pike were larger and grew faster than in 2001 and 2002. In 2003 only 9% of the trapped northern pike exceeded 3 pounds, but 59% were at least 2 pounds. This is a huge change from 2002 and 2001 when only 30% and 12% were at least 2 pounds. Results from 2004 trapping have not been summarized but the trend of increasing northern pike size appears to be continuing. Yellow perch numbers have been increasing in both traps and gillnets, but average size is only 5 – 6 inches. However, yellow perch up to 0.6 pounds and one northern pike 13.5 pounds were captured in gill nets in 2003.

Big Casino Reservoir – The walleye population is doing well. An 8.5 pound walleye was captured during spring 2004 trapping. However most walleye captured during gillnetting and trapping in 2003 were about 1 pound. The illegally introduced perch are starting to take over the reservoir and are getting skinnier. Half pound, 10 inch perch are still common and fun to catch, but most perch are in the 6 – 8 inch range.